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To Wm Cullen M.D. &c

B: Rush

To whom shall I present this first
Effort in Physic but to you Sir ~~whom~~ to
whom I owe ~~[illegible]~~ so much ~~of~~ ~~my~~ my Dr.
— you first taught me to think for myself
& it was by your Example y^t I was delivered
from ye Tyranny of great Names in Physic

I ~~[illegible]~~

Samuel ~~B. Rush~~ ~~B. Rush~~ B. Rush

J. Rush B. Rush B. J. Rush

B. Rush B. B. Rush

B. Rush B. Rush

B. Rush B. Rush

"Solidorum Natura, Solidorumque Morbi, quos per negligentiam nostram intactos adhuc luget Medicina, examinandi sunt nobis & perpendendi"

Baglivi

However useful such Inquiries may be in Other Sciences they seldom do much service in Physic. Most of the Ancient Physicians distinguished Diseases so much by the Regimen assigned to be ye proximate Causes y^t in many Cases it is difficult to ~~the~~ affix precise Ideas to their Names of Diseases more especially

Quaeritur - the Historia Morbi - Dignosis - Causes Prognosis - and Methodus Medendi of the Putrid Bilious Fever?

Mr: President!

It is no uncommon Thing in Dissertations of this Nature to spend some time in enquiring into the Opinions of Ancient, and ~~Modern~~ Authors. But as this would consume a great deal of time unnecessarily we shall Only Observe that it Appears to have been: Synochus Biliosa of Galen - the Synochus putrida of Riverius, and the Febris Maligna vel petechialis of Junker. Some Authors have distinguished it by particular names according to the Symptoms it assumed. thus when it is attended w: Dysentery

since the Improvements of later Ages have discovered their Supposed Causes to be entirely without Foundation. Besides Climates and Constitn.s are subject to such great Vicissitudes from a thousand Accidents that Diseases wch are always so much influenced by both these Circumstances put on different Appearances in almost every Age & Country. I would not pretend to say the Disease wch is designed ~~to~~ as the Subject of the Foll.g Paper was entirely unknown to the Ancients. Some of them have dropped a few Hints wch give us Reason to suppose they were acquaint.d with it, but what they have said tends so little to explain the Cause, or to point out a rat.l Method of curing the Disease that

we find it distinguished by Hippocrates by y^e^ name of the Dysenteria Atrabiliaris: and when attended w^th^: great Anxiety & Dejection of the Spirits in the Beginning of the Disease w^ch^: is very often the Case it is called by Avicenna the Febris Syncopa=lis.

among modern Authors this Disease has like=wise received a variety of names. thus we find it called the Bilious Fever - [the putrid Fever - the Bilious Remitting Fever] - and the yellow Fever all of which are One and the same Disease, and depend upon the same Cause. their only Difference consists in their Degree and not in their kind.

It would be easy to prove this Assertion from a variety of Authorities: let a Quotation from Dr. Couch in Dr. Pringle's Diseases of the Army page 205 in wch he considers them as the same Disease only differing in the greater or

we shall receive but little Assistance from
compiling their Sentiments upon this Subject.

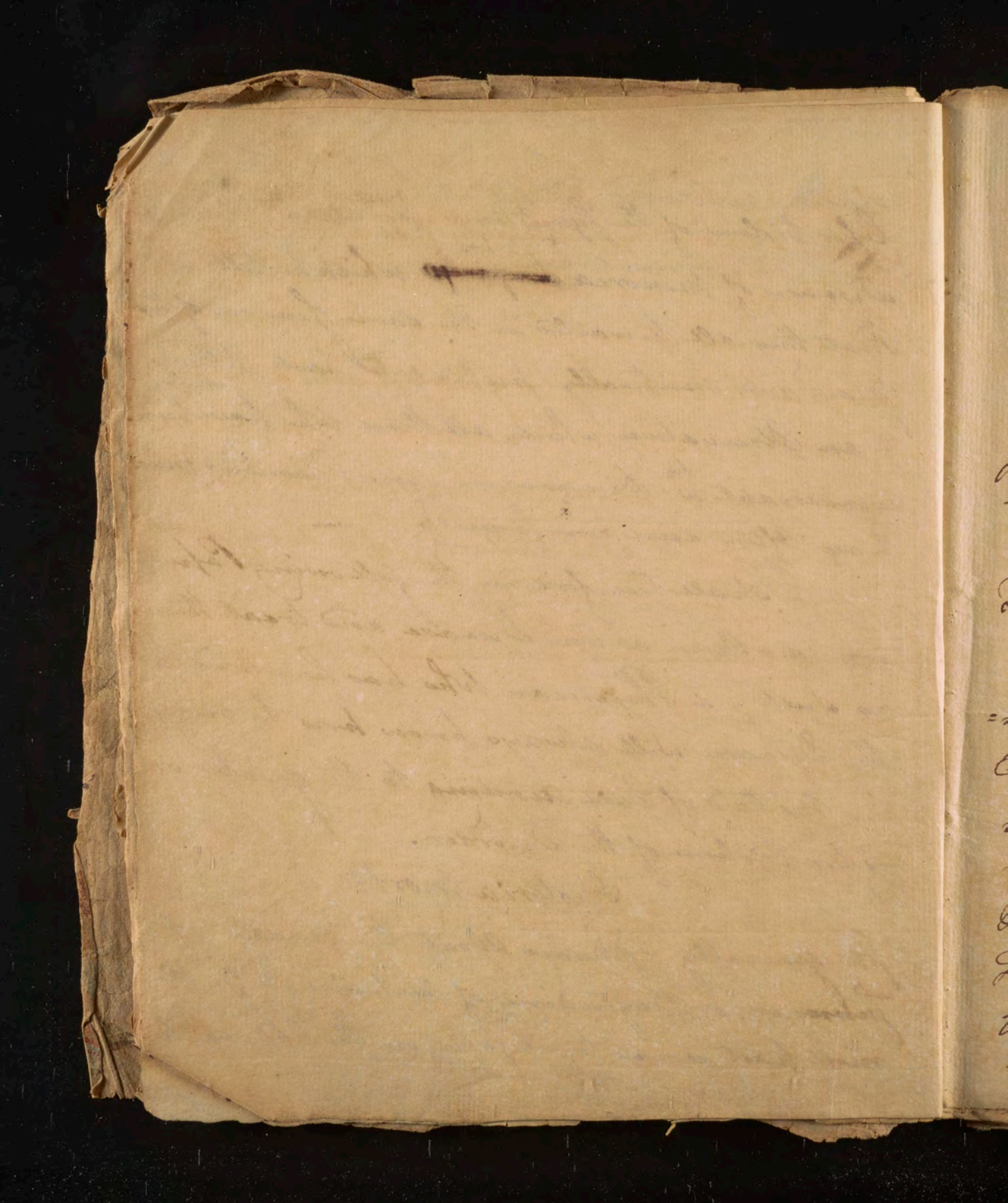
3

lesser violence of the Symptoms. [See also Dr. Cleghorn's Diseases of Minorca in which he tells us that they all prevailed in the same Season of the Year, and mutually propagated each other] — an Observation which all those who have been conversant w.th Diseases in warm Climates must have often been convinced]. —

I shall therefore in the following Paper consider them as One Disease and treat them as such. a Physician who has been used to the Disease will always know how to vary his Method of Cure according to the greater or lesser violence of the Disorder.

Historia Morbi

It generally appears about the Middle of Summer, or Beginning of Autumn, & for the most part ceases to rage upon the Approach



of cold weather. As soon as a Patient is seized w: the this Disease he imediately feels a Prostration of Strength - great Anxiety - intense Pain in the Head - Coldness and Shivering. these Symptoms are quickly succeeded by great Heat - a burning Sensation About the Precordia - a dry reddish - florid or black Tongue - a hoarse shrill voice - immense Thirst especially for cold subacid Drinks. the Lips and Teeth are covered w: the a black kind of Sordes. the Urine has various Appea=rances - sometimes red - black, & in many Cases bloody. the Respiration is difficult, and laborious! the Pulse in the Beginning is full & tense, but after a while becomes small - weak & irregular. the Patient complains of a bitter Taste in his mouth — tosses himself in his Bed from Side to Side without being able to rest long in any Posture. he feels a violent fixed pain About

the Precordia w.th is always encreased upon being prest.
— the whole Hypocondriac Region is swelled & hard. the
Patient nauseates Food, & vomits up every thing he takes
together w.th large Quantities of Green, & sometimes
blackish Bile resembling Coffe-Grounds. the Eyes
are inflamed — of a yellowish Colour, and often
suffused w.th Blood. the Bowels are sometimes
bound, and sometimes open. the Face & whole
Skin are tinged of a yellow Colour which in the
Progress of the Disease is changed to a livid grey.
— Black spots begin to make their Appearance
about the neck and Breast. the Blood is now
poured forth in a thin dissolved state from the
nose, ~~and~~ mouth, and urinary Passages, & is some-
times ejected in vomiting mixed w.th black Bile.
— the Hands & Feet now begin to grow cold. a Deli-
rium comes On, & sometimes a Syncope. the
Limbs begin to tremble — the Patient now feels

(4) the Malig.^n Dysenteric Fever
the Bile in this Disease is often affected.
that disposes it to Putrid.^n - but y.^e
Discharge here is widely diff.^t from
y.^e of Bilious Fever.

no Pain, & sometimes of a sudden recovery from his Delirium, and what is very surprising full an Appetite for Food. But at once he is seized w:th a fubrulous Tendinum, and Spasms in different parts of the Body or general Convulsions which for the most part ~~put an end to the Life of the unhappy Patient.~~ close & mortal & put an end to his Life.

It must not be imagined that this History belongs to all the different Species of this Disease. It is perhaps they are seldom found to occur exactly in the order peculiar to it Only in its most malignant state. we have described ~~them.~~ ~~the Diseases~~ are more — it would be an endless task to point out ~~each~~ or lab trid:t and:s to the ~~Cons:t of the Constitution~~ as they ~~Degree of it~~ the Symptoms w:th and each Degree ~~is that of the violence of the Contagion applied~~ of it that has been described by Authors.

Causes w:ch predispose to or ~~fr~~ occasion it.

Diagnosis

After the Symptoms here enumerated it will be easy to distinguish this Disease from (a)

1: The Ephemera by its longer Continuance — by the greater violence of the Symptoms, & by the Occasional Causes which produce it.

2nd: From the common Inflamatory Fever by its prevailing most in Summer & in warm Climates - by the Pulse which for the most part sinks on the 2nd: or 3d: day - by the Occasional Causes which excite it, and lastly by the fixt pain which the Patient feels in the Pit of his Stomach.

3d: From the nervous Fever - by the greater Quickness of the Pulse - by the Restlessness of the patient - by the pain: not being confined to the Head Alone, - and by the Patient: having no Disposition to sleep.

4th: From the Miliary Fever - by the Eruptions happening in the Close, and not in the Beginning of the Disease - by their not proving Critical - & by the different Appearance of the Eruptions: in the Miliary Fever they consist of little Pumos, whereas in the putrid Fever they have the Appearance of black Spots, and do not rise Above the Skin.

5th: From the Hepatitis - by the bilious vomiting -

(a) See Pringle page 82. & 83

(b) Ibid 83. Nothing disp: more to Sensib: in Lapland & Nor: no Cont: Dis: Cold destroy. Gn:

(c) This so much disposes persons to be affected w: contag: Diseases of all kinds that the Reason why the Plague and Other pestilential Disorders prevail so much less Now that they did 100 Years ago has justly been Attrib: to the greater use made of Veg: in Diet in formerly.

(d) Hill: p: 196 a Case from Spir: Liquors & did Nurse. also generally expressed p: 146 hence Sailors who drink so much are most subject to it called hence by the French "La Fievre matelotte"

— by the Pulse's becoming soft on the 2nd or 3rd day — and by the greater Anxiety about the Præcordia.
6th Jaundice — 6th Cholera Morbus.

Occasional Causes &

Predisposing.

The most common Occasional Causes of this Disease are 1st: Heat joined w.th (a) Moisture 2nd: very calm weather 3rd: the intense Heat of the Sun (b) 4th: great Quantities of Animal Food (c) 5th: Intemperance of all kinds (d) 6th: profuse Evacuations 7th: violent Exercise of the Body (d) or mind 8th: all stimulating high seasoned Diet 9th: ~~putrid~~ Exhalations & 10th: Contagion from a Person labouring under the Disease. [Perhaps none of these occasional Causes are sufficient to produce a Disease ~~to~~ except when they act in Conjunction w.th the two last.]

Proximate Cause

It were to be wished we could assign this as easily as we have done the Occasional Causes. Nature who seems to have delighted in simplicity

in her other works has wrapped herself in a veil inv:
=eliminal Oeconomy, and concealed her more se=
=cret Operations from our view. We no sooner
begin to investigate them, than we are at once
lost in a Circle of Causes & Effects. These Difficulties
occur w: th peculiar Force in our Inquiries into
the proximate Cause of this Disease.

It would employ too much time here to re=
=count all the Opinions that have subsisted
among Physicians upon this Subject. I shall only
hint at one or two of them.

For a long time this Disease was supposed to
have its seat in the Bile upon the Au: of a re=
=ceived Opinion, that it was more disposed to
Putrefaction than any of the other Humors
of the Body. But we have direct Experiments
which prove the contrary of this Doctrine to
be true. See Dr. Pringle's Appendix Exp: II.

(a) I am so far from thinking y^t it depends upon a morbid acrimony of the Bile that I rather imagine its acrimony is considerably diminished. all the Secretions we know becomes acid by stagnation from their more ~~non~~ fluid parts being reabsorbed & carried into the Circulation. ~~now~~ ~~nothing~~ ~~y^t can~~ is^e now any^e Bile is discharged in such large Quantities as soon as it is secreted, it has not time to acquire even y^e Degree of acrimony ch^t it is natural to it. I know many Physicians talk of Water being thrown up & ~~vomited~~ acid

Mr. Bride's Essays Experiment 28: & Dr. Ramsay's Inaugural Dissertation Exp: 25. Nor can we attri= =bute the Disease to an increased Secretion of Bile any more than we can the small pox to the pro= =fuse Spitting, or the Hysteria to the immoderate Flow of Urine which generally take place in those Diseases.(a)

An Opinion of later Date, & now more universally received is that it is owing to a putrid Ferment introduced into the Blood which has the power of assimilating it to itself, and thus bringing on a Gene= =ral Putrefaction. This notion was originally deri= =ved from Galen whose words are "Putredo est totius Corporis putrescentis in corruptam natu= =ram Mutatio" - the Chemists readily adopted this Doctrine - they considered the Body in a same Light they did their Chemical Vessels, & imagined that the same Processes were carried on there by

as to corrode the Oesophagus & Fauces. but I am apt to doubt this. ye repeated Efforts of vomiting may inflame the parts so as to render ye more sensible to ye stimulus of ye Bile, & may thus bring on a great deal of pain. for my part I have paid great Attention to ye Disease & have often stood by Patients in ye Act of vomit: & yet never heard ye: complain of anything like that or pain some Authors speak of. —

means of Menstrua - Ferments - Registers &c which they saw every day in their Operations, entirely forgetting the Animation of the human System which necessarily influences all the Operations wch go forward in the Body in such a manner as to render it difficult to illustrate any of its Functions by Analogies borrowed from Other Parts of Nature.

This Opinion altho. supported so much by Analogy will appear very improbable when we consider

1: In all Cases of Assimilation by means of Fermentation we see an entire Change of Properties produced. - a total Decomposition ensues, and the new Product retains none of the Properties of ye former Mixt. but we see nothing of this kind to take place in Animal Powers. the Blood is only dissolved, or its component parts mixed, but no new Change is induced in its Nature or Properties.

‡ Besides if the Disease was the Consequence of Putrefa. it wd: be worse while the putrefn: was greatest, but instead of this we find the most violent Symptoms in the Beginn: at wch: time these Dis: are infy: as will be shown hereafter

(b) the Petechiæ then are no Marks of Putrefaction since we often see them in Diseases purely infy: as well as putrid ‡

(c) It sometimes lies — for 10 or 12 days before it excites the Disease & sometimes brings on it at once t see Lind &c] in these Cases surely no Putrefn: could have taken place. the patients mentioned by Lind were seized the moment they recd: the Contagion. Dr: Pringle mentions several Instances of Soldiers who were seized in a ~~(a) Physical & Literary Essays of Edinburgh.~~ manner equally sudden wch: these men tell the he does not tell us they perceived any smell at the time. But it is highly probable these Symptoms could arise from nothing else but the immediate Gut upon of the Contagion on their Constitutions. Thus Difference in the time in which the Dis.

2nd: we often see all the Symptoms of a putrid Fever arising from Contagion, and yet the blood so far from being dissolved retains an Inflam: Crust. a remarkable Instance of this may be seen in De Haen's Works vol: 2: page 163. (&)

3rd: Ale Ferments begin to act ~~at once the Ferment~~ as soon as they are applied to the Bodies anew: they are designed to act ~~but nothing of this has been observed~~ & generally Brewers from Re=
~~timately~~ ~~this be the~~ c: gard to Contagion. [we often ~~a~~ find it lie in y: Constitution for Days and weeks without producing any sensible Effects as in the Case of the Small pox & Measles, & several other contagious Diseases]

4th: Ale Ferments act uniformly on whatsoever Bo=
=dies they are applied to, but Contagion we know does not. we often see Persons exposed to it for Months & years without catching the Disorder. Dr Lining tells us that the negroes in Carolina were never subject to this Disease altho they were constantly

affected may easily be account'd for by having Recourse to the diff.t Degrees of Sensib.y in different Constitutions, for the Disease always appears to be in a Ratio compounded of the Sen.y ~~of the~~ or ~~the~~ Predisposition of the Patient & the violence of the contagious Matter y.t affects it. —

(a) During the Spreading of many contagious Fevers we often see Physicians & Nurses who are most exposed to them escape the Disease.

[illegible] the Disease

exposed to it. (a) What can this be owing to? — perhaps we shall be able to show hereafter that it depends upon a lessirritable nervous System on which the Contagion appear chiefly to act. Upon this Acc.t it may be that those occasional Causes which induce an encreased Sensibility or Irritability of the nervous System are the only Causes w.ch predis=pose to this Disease. Strangers most affected bring in D.r Rush's Review

5.th The Blood is renewed every two or three Months insomuch that none of its former parts remain. now as this is the ~~case~~ Case why should it not a second time be subject to contagious Diseases? — we know of no well attested Facts of Persons being seized w.th contagious Diseases twice especially if they had ~~had~~ them to a pretty high Degree.

6.th Even supposing a Ferment did act upon the Blood so as dissolve it, yet this would not account

2 6.th ~~Petechiæ~~ have been supposed to ~~be~~ indicate a Putrescency of Putrefaction

(a) Nor does a dissolved state of the Blood by any means suppose a Ferment? for a Fermentation or Putrefaction preceding, as we sometimes see it take place in Febrile Diseases such as the Pleurisy & Peripneumony in w.ch; no one can suppose any thing like a Ferment introduced into the Blood. See Huxham &c

Neither does a dissolved state & great Prostration of Strength suppose Putrefaction, both these take place in a highest Degree in a Jaundice & yet we are sure this is no Putrid Disease. Lind 262

for the Phanomena we see attending this Disease, for we often find a dissolved state of the Blood, & sometimes from putrid Causes, & yet no Fever attends as in Scorbutic & Hysteric Patients, & in some fabrications. See Dr Hoxham's Obs: on ye Plea: wch disp: Blood. (a)

7th In Order to support this Doctrine of Fermentation we are told that the Blood of Persons in hot Climates is much warmer that the Blood of Persons in cold Climates which disposes it more readily to Fermentation, and hence putrid Ferments act more ~~readily~~ easily upon it. But this supposition is entirely without Foundation. The Blood of every Person in a healthy state retains the same uniform Temperature in all Countries even in those Cases where the Heat of ye Atmosphere is 20^a or 30^a Above the Ordinary Heat of ye Body.

— Those Who plan the Cause of Animal Heat in certain oscillatory motions of the nervous Other tell us that it is incapable of accumulating any further

(a) See this Observation more fully explained by Mr. Blair in Dr. Rustan's Thesis. p: 36. —

(b) from all this I w^d. infer that Nothing can analogous to Putrefaction takes place in the Fluids of the Body in this Disease.

8: Much has been said of ye Smell - fœtid Breath - Shots &c. but these are doubtful. arise from false Theory See Sauvage Vol: II &c.
Besides we find m^y: all in q^y. Sensys: is no fœtid Disease. — bring in by oppos: side of p: the new.

Heat after the external Heat of the ~~Body~~ Atmosphere becomes equal to that of the Body, & endeavour to support this Opinion by the Analogy of Sulphur which loses its power of retaining the Electric matter the Moment it is reduced to a fluid state. But the Data on which this supposition is founded are by no means to be granted. I think a more simple solution of this Fact may be given by having Recourse to the Cold which is generated by Evaporation. (a) the more intense the Heat the greater Cold is generated, as the Perspiration will always be proportioned to the Heat. May not this be the Reason why Reapers, & those Workmen who sweat most freely, generally feel the Heat of Summer least? (b)

After having raised these Objections to the Theory of ~~Calcination~~ Fermentation it will be expected that I should assign some Other

proximate Cause. I wish I was Able to do so. But such is the present state of our Knowledge in Physic that I despair of offering any thing complete upon this Head. But [~~encouraged by that Spirit~~ of free Inquiry, and relying upon that Candor w^ch: have hitherto so much distinguished this Society I shall w^th: diffidence presume to offer my Conjectures upon this Subject I w^d: ~~I~~ shall however w^th: a^l: diffidence w^l: becomes a y^e: Inquirer after truth presume to offer a few

1: Of the Contagion which produces putrid Fevers of One kind which Operates differently in different Seasons, and on different Constitutions; or are there so many different Species of it? If we attend to the most common Occasional Cause of these Fevers viz: putrid Exhalations, we shall be inclined to the first Opinion. But when we reflect y^t: these Contagions act uniformly on all Constitutions which they affect, & in all seasons of the Year we are led to believe the last Opinion, especially when we

(b) See Dr Zembius Path. page 251.

(a) "Secundum mea Experimenta in convivere de vera Putredine, etiam nondum Alkalina in viventi Corpore Animali. in tot morbis putredis etiam con=clamatis dum sanguis venâ tusâ eductus aut Ali=unde affluens, examinatus, nunquam ne in pessimis quidem variolis Putredinis signa vel minima mihi dedit.

" Il seroit sans Doute bien singulier que des Malades auxquels on a observé les marques les plus completes de cette prétendue Pourriture, puissent non seulement en réchapper mais encore Jouir

De Haen tom. 4 page 172

add to this that Persons who have had One of these Contagious Diseases are not exempted from the Others. (b)

2nd Is it not more probable that ~~the~~ Contagion affects the Solids primarily rather than the Fluids? — and do not 1st the Fever, 2nd the Debility wch attends it, & 3rd the Impossibility of the Patients being seized a second time wth it favour this supposition?

3dly may not the dissolved State of the Blood arise entirely from Debility in the Solids, especially as we always find it proportioned to this Debility? & may not ye Hemorrhages which sometimes attend these Fevers be rather the Consequence of a preternatural Relaxation of the Solids, than of a putrid Acrimony induced in the Blood? — (a)

4th It has long been a Problem in Physic why Persons are subject to Contagious Diseases but Once in their Lives. This Inquiry altho a Matter

peu de tems après de la santé la plus parfaite. Combien de gens d'ailleurs ont l'haleine si puante qu'on n'ose les approcher, & d'autres dont les sueurs, & la transpiration ont une Fétidité qu'on a de la peine à supporter, & qui ne laissent pourtant pas de jouir de la meilleure santé? Osera-t-on dire dans cette Circonstance que leur sang est corrompu? - Combien de substances ne connoit-on pas parmi les végétales, les Animales & les Minerales, qui exhalent de leur Nature une Odeur des plus désagréable? - pourquoi les Liqueurs vivantes animales ne pourront-elles pas prendre ce Caractere très indépendant de la Putréfaction, dont on sçait que les Effets sont la Destruction totale du Mixte sans Retour? -" Lieutaud p: 21

of the utmost Consequence has always been checked by resolving the Fact ultimately into the Will of the Creator. But this mistaken veneration has done no less Injury to the Progress of Science in every Age, than it has detracted from the Honour of ye Author of Nature: in philosophical Inquiries, we ought to the more minutely we push our Inquiries into the works of Nature, the more evident Traces we find of the Wisdom of the Deity, & this Wisdom is displayed no less in Efficient than in final Causes. I hope therefore I shall be excused in attempting a Solution of this Question. —

follow the Rule of the Dramatist — Nec Deus intercidat

The Force of Habit is well known in our System. — all the Organs of Sense are liable to Sensations from Impressions communicated to them by external Bodies. These Sensations are more or less acute as ye Impressions have been more or less continued. a Man who has long been accustomed to study in a Place which

adjoins a Smith's Shop or the Street, is deaf to the Noise of the Hammer or Chariots which at first disturbed him, but hears at once the softest notes of Music, or even a whisper in an adjoining Room.

a delicate Lady who has long been in a Habit of taking Snuff in large Quantities without feeling perhaps the least Irritation upon her Nose is thrown into convulsive Fits by the Smell of Musk Ambergrease or even a Rose.

a Person who has long been used to chew Tobacco feels none of those Sensations excited on his Tongue he did the first day he took it in his Mouth, but if any thing of a different nature with the least Degree of Acrimony is applied to his Tongue, he immediately feels the same Sensations excited on it that a Person does who never chewed Tobacco in his Life.

Men whose Office it is to clean necessary Houses I have been told never smell any thing offensive in the loathsome Mapes they are perpetually exposed to, & yet sneeze most violently when they take a Pinch of Snuff. Instances of this nature might be multiplied without number.

We before aimed to prove that Contagion was nothing but a Stimulus Applied to the nervous System which induced an encreased action of the beside. If this is the Case may not each Contagion leave some state of Insensibility upon the nerves, wch we find the several Impressions Bloms aid leave upon each of the Organs of Se[illegible] — Is not this more rational than to suppose that Contagions purifie the Blood, & expel something from it wch we brot into ye world wth no which is Absolutely necessary to our future Health? — I know it will be Objected

ca. I grant indeed that if the Impressions we
before spoke off are intermitted for an con-
=siderable time they act as strongly as wo
when applied again to the Body. this may
easily be accounted for, nor does it in y^d least
affect the force of these Analogies. for we
must remember that they are applied only
to One of the Organs of Sense, & are never so
violent as to induce any Commotions in the
System whereas the stimulus of Contagion is
so violent as to affect the whole System w:

here that the venereal Disease & Itch are received as often as we are exposed to the Occasional Causes of them. to this I would answer that these Diseases appear to be less connected w^th: the nervous System, & this I take to be the Reason why they ~~Diseases~~ are never attended w^th: any Fever except when it arises from topical Inflamation. the infectious Matter is moreover in a fixed State, & hence exerts a more partial Stimulus. ~~Upon this Theory only can we tell the Reason why~~ Camphor Musk &c when worn around the Neck serve Against Contagious Diseases, it must be by exciting a Stimulus on the Nerves, & thereby rendering them less sensible to y^e Stimulus of Contagion. Dr. Lydenham tells us that y^e Labaw=nists, & gouty people were the only People who escaped y^e Plague when it raged in London, & there are few who have been conver=sant w^th: Contagious Diseases but what have seen

an Impression so strong as to leave the nerves
callous if I may be allowed the Expression
to all future Impressions of a like nature.

them often prevented by Precautions of a like nature. it is worth Observing here that y^e Stimulating Substances which are applied to the Nose or Mouth are only efficacious while they continue to exert their Stimulus. for it is no less a Law in Impression y^e: Perception, that but One can be made upon a Sense at One. it would be easy to show of how great Application this Law is in Physic. —

5th: Another Question here occurs, & that is how is it that One part of the Body should be so uniformly affected with the same Contagion? — I think a probable Answer may be offered to this. we have before presumed that Contagions are in their Natures specifically different. it is a well known Fact that there are Specific Stimuli in Medicine. the Operation of Mercury can be no ways explained but by supposing the salivary Glands to be specifically

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affected by it. Unless we admit this Doctrine I know not how we shall explain the Reason why a few Drops of the Antimonial Wine should excite such a Sickness in the Stomach, & yet excite no Sensations on the Tongue, or even on the Eye itself, or why a large Quantity of Salt may be taken into the Stomach without producing any Sickness, & yet a few Grains of it we know excite the most uneasy or acute Sensations when applied to the Tongue or dropped into the Eye. Dr. Cullen has lately thrown out Hints which confirm this Doctrine beyond a Doubt in the very ingenious Manner in which he has diversified the Sense of Touch. Now when we admit these Truths we may easily comprehend the Reason why the same parts of the Body are so uniformly affected by the same Contagion such as the Skin in the Small Pox - the Lungs in the

in some Cases however the Indispo-
-sition of the Patient by some of ye Contag.
cooperate in such a Manner ~~as that~~
~~a sudden Atonia is~~ induced an Atonia upon the
whole ~~nervous~~ Nervous System Disease so suddenly as
that ~~no~~ no Marks of preceding Inf.
can be perceived. This Atonia we know
is ~~the~~ often the Forerunner of Gangrene;
~~for we find in those two~~ in those two Cases of Cold
~~& Contagion~~. it w.d be easily illustrate
this further from ye Anal.y of Poisons w.h
we find their Effects so suddenly. it is
now universally ack.d ye their Operation is
entirely conf.d to the Nervous System, & yet
how soon do we see all ye symptoms of
See page 34

Measles - & the Liver in the bilious Fever.

6th: It is now universally allowed that Fevers more especially those of the intermitting kind are owing to certain Affections of the Nerves. the notions of Morbific Matter have been justly rejected from our Theories of them, & the Sweats & Sediment in the Urine are easily accounted for upon Principles far more simple than the Expulsion of acrid Matter which feed the Disease. now if we can produce any Instances of the bilious Fever resembling Intermitting Fevers it will afford a presumptive Argument in Favour of its being in the manner an primary Affection of the Nerves. an ingenious Member of this Society informed me that he had been a Patient in a bilious Fever who had a regular Discharge of Bile every day for several weeks from the Hours of 12 till 2 in the Afternoon. a time in

8th a very hard Question arises here, & that is, if we deny Putrefaction's taking place in the Fluids in wh Manner shall we an~~swer~~ for the propagation of the Disease? ~~any~~ to this Answer: I would by no means re=ject an Assimilation ~~to~~ being present in the Body. ~~but at the same time~~ found this we must admit, nor is it any way repugnant to the Doctrine we have been endeav: to establish espe=cially when we extend our Ideas of Assimilation. - many things we see in Nature from established Laws wch we cannot explain produce things wch have no Resemblance to themselves. thus ~~the Juice of Fruit~~ is ~~found from~~ simple Elem: Water, & ~~the mucus of~~ ~~secreted Fluids of the Human Body~~ is capable of being converted into ye Juice of a Tree ~~and~~ certain Fluids in the Body are capable of being ~~converted~~ changed to into a Matter by the secretory organs ye bean

which we know all Fevers have their Incubations &
in which Persons in perfect Health have an evident
Quickness of Pulse. 'tis hard to tell from whence
this rises. perhaps it may depend upon the Re=
=volution of the heavenly Bodies the Influence of wch:
over our System more especially in inducing peri=
=odical Habits is too evident to be doubted.

7th: It is a Law in our System that all Stimuli
excite Inflamation when applied to the Body, and
that this Inflamation is always proportioned
to the greater or lesser Sensibility of the part affected.
the Tendency of all Inflamations we know to be
to Gangrene or Suppuration. & this are always
brought on sooner or later according to the violence of
the Stimuli applied. Do not all Contagions therefore
act as Stimuli on the parts they affect? & do not
the Gangrenes or Suppurations which happen in
all parts of the Body evidently show that an Infla=
=mation

not y^e least Resemblance to any of the component parts of the Blood. in the same manner we may conceive of an Apinis Lutum going forward in the Body w^ch ~~[illegible]~~ is by no means of y^e Putrefactive kind. — the Measles is no less contag: y^n Bil: Fever, & yet no One will pretend to say Pus is Putrefactive attending. (as horologia vol: II. page 363.

∴ Bill^ts likewise found ye Blood cro: wan Inf^ts Crust. 1st page 28

Pringle led in the first stage of ye Jail or Hosp^l Fever wch is highly putrid, & yet found the Blood tiny ~~[illegible]~~ it attacks wth all y^e ~~Signs of Inf^n~~ page 299. he likewise upon Dissection often found Abscesses in the Brain w^th ~~head~~ wth its Ventricles filled w^th ~~purulent~~ ichorous Matter. page 311 see 34 Jail Fever inflam^n: 1750

(b) from ye Plague itself shows greater marks of Inf^n than this. from Dissections of Bodies dy^g dead wth it at Marseilles some of ye viscera were always found inflamed or mortified.

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has preceded? — I am not singular in this Opinion. Sauvage places the Plague itself among the Inflammatory diseases. his words are "Morbus est Inflammatorius; quod indicant Ardor, Sitis, Rubedo" as Dr. Sydenham we find treated it as such, and never failed to order Bleeding in its first Stages. (b) 8. see page 24

After what has been said, it would trespass too much upon the Ordinary Bounds of a Paper to dwell upon the Ratio Symptomatum. if the proximate Cause we have assigned is admitted it will be no difficult matter to account for most of the Symptoms which happen in this Fever.

I have nothing new of any Consequence to offer upon the Prognostics more than what our learned Professor Dr. Gregory delivers so fully in his Lectures. I would only add two Observations under this Head which are deduced entirely from my own

Sr: nothing now remains but to say a few things concerning the nature of the Contagion or Miasmata w: produce this Dis-
-ease, but as this Reg: has no immediate Con-
-nection w: our present subject we shall say we should state here how Miasmata & Contagion differ.
but a few words concerning it. From w^t has been said it appears y^t this Disease can never be produced w^out ye Concurrence of some highly acid irritating Matter introduced into the Constitution. this Matter may be ~~the~~ ~~product~~ of an Animal or Vegetable origin. ~~putrefaction~~ putrefaction.
we ~~may~~ have Instances in of Malignant Diseases being produced from both these Causes. See Dr Rodgers Diseases of Cork page 41. in w: Manner these Substances are diversified so as to produce diff^t Diseases is hard to tell. perhaps it may

repeated Observations.

1st: If the Patient feels such a sudden Inclination to vomit that he ejects the Contents of his Stomach w: considerable Force in attempting to rise it ~~is~~ presages the utmost Danger.

2nd If he feels such a sudden Inclination to go to Stool while in his Senses that he is unable to retain his Faces till he is provided w: a Bed pan or Close-Stool, it is a Sign that prognosticates Death to be at hand. I shall now proceed to the — —

Method of Cure

See page 30 Oppos: Side.

The Indications of Cure in this Disease are two

I. to abate the encreased Irritability of the System &

2 to abate the Symptoms.

3 II. to obviate Debility & strengthen the Patient.

To the 1st Indication belong.

1st Bleeding — This is of the utmost Consequence in the Beginning of this Fever. All Authors agree in

depend upon different ~~states of putrefaction~~ changes in the contagious matter which may be derived from the different circumstances of heat and moisture operating upon them. in this state they are called miasmata. ~~often they have had a disease~~ + from p. 26. We often see the disease propagated in its first stages long before we can suppose any thing like putrefn to take place, when the disease is not yet called contagious. or even before any of those symptoms occur which have been supposed to indicate the presence of putrefn in the blood, but which we have shown may depend upon other causes, & are often connected with diseases which do not arise from contagion, but are of the true inflm nature.

Often also I grant there is a Febrile fever connected with heat & friction & want of food, but this may happen in Inflm fevers, & does not arise from a putrid ferment which

the propriety of this Remedy. no limited Quantity of Blood can be fixed here. it must Always depend upon the Age - Temperament - state of the Pulse - & his bite of the Patient. Hillary orders it pr. 157. th: be rev: if Symptoms indicated.

2nd Laxatives. These are likewise highly useful - When the Bowels are constipated, but they should be of the most gentle nature. the Sal Glauberi seems to answer best for these purposes. I have seen Zss of it given every four hours for several Days with great Advantage. When taken in these small Quantities it lies longer on the Stomach, is more cooling & less apt to purge the Patient immoderately.

Vomits have been given by some & much recommended by Others, but I think w: th no Advantage. - the Indication th: w: th: they were given is no less erroneous than the Practice has proved hurtful. the Sickness at Stomach depends entirely upon an increased

chiefly have aimed at is to prove ye ye Disease is seated originally in ye Nervous System, & ye the ~~Fluids are affected~~ only in Consequence of this, & ye ye This Bartholine discov: in a Fever of this kind at Copenhagen from a Number of Dissections insomuch ye he imagin'd it was ye Seat of it. Histor: Anat: Rar Cent. 81 hist 56.

See Hill: on the Imp: of Vomits p: 159. he always in Dissections found ye stomach inf:

Indication of Cure must turn chiefly but removing the Affections of ye: Nervous System.

Vi: If Vomits are given they sh: be of ye: most gentle Nature. a little Ipec: dis: in water.

Irritability & Inflamation of this ~~stomach~~ tissues, & not upon any acrid or putrid Jordes lodged in it. Altho' we evacuate the Stomach of the Bile &c ch. it contains by giving a vomit yet we ~~only~~ say a foun=dation for a greater accumulation of it by encreasing the Gaintulus which first derived it there. It has been found in some Cases where the Patient has com=plained of the most violent sickness at Stomach, & has ~~vomited~~ up every thing he took, that upon giving a vomit ~~too~~ no Bile or any thing like it has been thrown up which sufficiently winces that it depends upon Inflamation. to Alleviate the nausea & vomiting I know of nothing better than Riverius's Mixture, & Plasters of Thericaca applied to the external Region of the Stomach, 2d 3d Cool Regimen - consisting in 1st Cool Air. 2nd Cold Drinks & 3d Ripe Fruits.

Indn. of Cure shd. always be founded upon
the proximate Cause. ~~we have attempted to show that~~ it appears now that
the Contagious Matter has a ~~[illegible]~~ operating ~~not only upon the nervous system~~
~~as a Sedative~~ upon the ~~[illegible]~~ Body in a stimulant
upon the Arterial System, & 2nd: as a Sedative
upon the nervous System. to this we might add
its Effects upon the Fluids where it act ~~[illegible]~~ in
such a manner as to produce an Assimilation
in some part of them, the Indicn: of Cure accrd. to
the plan we have laid down must be

1st to abate the increased Action of the Arteries
2 to Obviate Debility
, as See Dr Brocklesby &c

i Cool Air. There is not a greater Error in Modern Practise than keeping Patients too hot in Fevers more especially in those we have been describing. future Ages will be as much surprised at our Conduct in this Respect as we are at the Folly & madness of Asclepiades who refused his Patients Drinks of all kinds in the first Stages of Fevers. both Practises proceed from equally false Theories. the sagacious Dr. Sydenham first endeavoured to reform this Practise. we find him dwelling upon it thro all his Writings. the amazing Success which has Attended the new Mode of Inoculation seems to be owing to nothing else than the free use of the cool Regimen; & from many Circumstances we have Reason to think the Small-pox & Bilious Fever more nearly related to each Other than has generally been supposed.(a) I would therefore Order the Windows of my Patients Chamber to be kept constantly Open, & would contrive to have Artificial

(a) "Etiam amplo Conclavi tenendus, quo multum et purum Aerem trahere possit; neque multis vestimentis strangulandus, sed admodum levibus tantum velandus est" Celsus Lib. III Cap. 7 page 134

(c) See Shakespear's King John. 2. 4th mark prosp. might they adopt the Language of the King Johnin the Play when he lay Scorched w. a violent Fever not from a natural Cause"

(b) See Dr. Mich. Rosa.

Draughts of Air introduced into it. they should likewise set up as much as possible, & be covered w:th nothing but the lightest Bed Coaths.[a] I would besides this Order the Floor to be sprinkled with Water or Vinegar w:ch by evaporating would indue a grateful Coolness in the Room, the Heat of which should always be rather below than above 60:o.

2:nd Cold Drinks. Nothing can be more cruel, or ill judged than to deprive the poor miserable Patients of that w:ch they cry out so much for. how many Instances have we of the most remarkable Cures being performed by a Draught of cold water![b] Why then do we oppose a Practice w:ch nature indicates & Experience justifies? Instead of giving my Patients warm Drinks I would strictly forbid them to take any thing but what was cold. they should all be acidulated with the Spirit of Vitriol.

3.

3: Ripe Fruits. These are of the highest use in all fevers of this kind, not only because they are grateful to the Patient, but upon the acct: of their cooling & laxative Qualities. the great Dr: Boerhaave first introduced them at the Risque of his Reputation, and later Experience abundantly confirms their usefulness. It is worth observing here how bountifully the Author of Nature has provided those Countries where these Fevers prevail most, w: the most delicious Fruits, w: are generally produced in that Season of ye: Year wn: these Fevers rage most.

To the II. Gen: Indication belong

1: Preparations of the Bark & Elixir of vitriol.

These Medicines are the only Cures on w: I would place any Dependance. their usefulness is sufficiently warranted not only by the Consent of all Authors, but by the most desirable Success. Dr: Sydenham

(a) I use the word putrid here in Compliance
w: th the common Language of Physicians. —

(b) Exp: 5th w: ~~Lessen~~ Serpentaria
Flor: Cam &c
It appears from Sir John Pringle's Exp: that
Cam: Flow & Serp were equally powerful in
resisting Putref: n out of the Body. if the Effects
depended upon its Antiseptic Qualities what
Ob: give it such great advantages above the

first introduced the use of the Bark in putrid Fevers of all kinds (a), & in this was followed by Dr. Morton & many Others, of a later Date, such as Huxham Pringle & Dr. Haen. See vol. 1. of the last mentioned Author's works page 265. Each of these Authors recommend it in the highest State of ye Disease, & do not confine its use to Remissions wch seldom or never happen in those Fevers where its use is most indicated. the Bark in those Cases is generally given as an Antiseptic. this notion was introduced first from seeing its Effects in preserving Bodies from Putrefaction. but I deny its having any Analogous Operation on the human Body, & I would therefore reject the Term entirely from Physic as highly unphilosophical (b). there are few of us but what have seen approaching Gangrenes in a remote part of the Body at once checked by

Other two Medicines in these kind of Fevers?

Besides

~~Putrefaction~~ dissolved Blood &c Deceived their Action. This was long ~~supposed~~ abridg to be owing to a Putrefaction of the Blood, but can now be explained more rationally by had: Recourse to the Colonia induced upon ye Nerves. —

a few Doses of the Bark. did ~~the Bark have mix~~ it in these Cases mix with the Blood? – restore its Consistence? or supply it with fixed air as a late Author has supposed? "Credat Judæus Apella". – Such Suppositions need no Refutation.

2.nd The free use of wine. Among all the Cordials w.ch have been introduced into Medicine there is none to equal this. it ~~gives~~ exciting vigor of Limbs & promotes a due Distrib.n of my nerv. Influence. Asclepiades said "Utilitatem Bini via Deorum potentia æquat" I am apt to think the Success w.ch Dr. Pringle ascribes to the Serpentaria depended entirely upon the wine which he gave the w. it. – the best wine in these Cases is Claret or good Old Hock. the great Advantage of these Cordials is that they revive & strengthen the Patient without exciting any Heat or encreasing the febrile Symptoms. the wine is

vomits

(w/ Blisters doubtful! Hillary rejects them p: 170 - perhaps from theory. System in so highly irritable a state that the least fever excites inflm: w: tends to Gangrene. See Lind on y: subject. Cullens says useful recommends y: on they may be given cold climates - Pringle's fact wd make me doubt y: Use. never saw y:

these Cases is generally given in too small Quanti=
=ties to do Service.

3.rd Nourishing Diet. to this Head belong Panada Broths
Jellies &c. w.ch are too well known to be dwelled
upon here.

4.th Exercise. particularly riding in a Coach as the
Patients weakness will seldom admit of his using Ex=
=ercise of a more violent nature. (a

B. Rush

Thus have I finished w.t I proposed in this
Essay. if I have advanced any thing in it w.ch
will tend to throw any Light upon the Cause of the Disease
~~lately mentioned~~, or lead to a more suc=
=cessful Practice in treating it I shall think
myself ~~very happy~~ ~~if Providence hath put it~~
~~in my power~~ ~~more early to do~~ amply

(a ~~[illegible]~~

(a) All I intend by it is, to inform the world
that I have had the Honour of being your
Pupil, & that ~~I am proud of but the little~~
~~an proud w: Others who have had the like~~
~~Honour~~, most of my fellow-pupils carry with
them more distingd. marks of their being far?
w: the Instructions, yet none of them exceed in
Gratitude & Esteem yr. &c

J. Nash
B. S.

repaid for my Trouble. But if I have not ~~[illegible]~~ ~~[illegible]~~ shall take Refuge under the Words of the Poet "Magnis dare est velle".

To Wm Cullen M:D.

I do not ~~[illegible]~~ [illegible] in [illegible] to this ~~my first Trait in Physic~~ [illegible] to raise ~~your~~ ~~Character~~ Repn. ~~your Reputation~~ by those fulsome Panegyrics wch. usually constitute Dedications, ~~[illegible]~~ much less do I ~~[illegible]~~ intend it as an Acknowledgement of the Obligations wch. I owe to you. The first is too well known to receive ~~any~~ additional Repn. from anything I can say, and the last are of too strong a nature to be ~~[illegible]~~ expressed by the Force of Language.

(L.a) May you long continue to adorn that

Seat of Science wch owes so much of its present Resp.^t to your Genius & Industry!

~~[illegible]~~ ~~May you have the [illegible] of [illegible] Pupils who shall~~ ~~& enjoy [illegible] may the joint Efforts~~ ~~[illegible]~~ & may you every day enjoy more & more of the sublime Plea-sure wch arise from ~~[illegible]~~ communicating Happy & Knowledge to all around you!

— had I entered into a minute Discussion of all those Questions to which this subject would naturally have led, this Dissertation wd. have far exceeded ~~wd.~~ the Limits ~~of a Pamphlet~~ I propos-ed. I have endeavored to deliver my sentiments ~~of~~ with all Diffidence which becomes a young Author, & a candid Inquirer after Medical Truth. — happy shall I esteem myself if any thing I have hinted here will tend to ~~throw any new Light upon this subject~~ ~~lead~~ throw any new Light upon this Disease; or ~~tend~~ lead to a more successful Treatment of it! — but if I have failed in this, I shall take refuge under the words of the Poet, & say "magnis tamen excidit ausis"

There are two ~~Cures~~ Remedies which do not properly come under any of y^e ~~two~~ Heads we have been speaking off viz Vomits & Blisters. ~~many~~ the first are for the first part given very promiscuously in this Disease. Dr H^y is the only Author who speaks ill^y of them. how far they may be safe & useful in those Climates where the Bil: Fever prevails only in a slight Degree, I shall not pretend to say, but in ye warm Climates where it rages wth more violence they seldom fail of doing a great deal of Mischief. we are taught from Dissections of Bodies y^t have died of this Disease y^t not only the Gall: Bladder is found swelled & inflamed, but also the Duodenum & very often

the Stomach itself. the Efforts of vomiting therefore would in this Case have the most dreadful Consequences. Altho we evacuate de ut p: 29. ~~It is a wrong~~ Notion to suppose ye: all affections of the Stomach depend upon Sordes lodged in it. most of its Diseases are ye Consequence of Infn: or Acrimony I would therefore advise Ag: the use of Vomits even in the most mild states of these Diseases, & even in these Cases I would attribute their Success more to their promd: a Determn: towards the Skin & thereby obviating the febrile Spasm ~~rather~~ than to their evacd: any Sordes from the ~~Stomach~~. Remedies. to alleviate ye Nausea & Vomd: there is nothing better ye Rivel &c

of Partus of Tartar Emet. to y Stomach.
— the use of Blisters in this Disease
is no less ambig: y: y ~~Exhibition~~ Exhibition of
Vomits. ~~in the first stages of the disease~~
~~are apt to~~ How far they might prove of
service in its first stages I shall not pretend
to say as I have never seen them tried in the
early periods of the disease. Dr Lind relates
some remarkable Instances of their ~~use~~
usefulness in the beg: of y Yellow Fever
wch w: ~~for~~ was brot from America into England during
y late war ~~to Britain~~ but I am apt to
think the Disease was so changed from wch
was originally that it w: not do to apply this
Practice universally to all Climates in the

second stage of the Disease we have marked
but they are evidently hurtful, not by
dissolving the blood, & thereby increasing its
putrid Diathesis, as upon yor: supposed, but by ~~destroying~~ encrea.g
the Colonies of the Lepsis, & thereby endangering
Gangrenes in the places where they are
applied. Sir John Pringle ~~has~~ mentioned
a Case of a Soldier wh: confirms this however
notwithst.d: happily cured by a plentiful use
of the Bark. It is much to be wished that
the proper use of Blisters was fully ascertain.d
in this as well as in other malig.n: Fevers.
— we have too Facts in Medicine to speak
wh: any Degree of Confidence either in y.r favour or

of them. for my part I must acknowledge my want of Experience & Observation upon this Head. ——

Thus have I finished w: I proposed in this Essay. see p: 37

Acids - these in like manner have been given w.th a view of obviating putrefaction & coagulating the Blood. But their operation is entirely confined to the stomach, from whence their effects are extended to every part of the ~~system~~ body. They serve to brace up the system, & prove excellent cooling medicines. The vitriolic acid is to be preferred to the other min.l acids, as being less heating, & more agreable to the stomach. —

I will not however say but that both Diseases may have been originally entirely the same. Their ~~Difference~~ may depend upon the Influence of Climates upon the Mind: Dr Buck seems to be of this Opinion. The Camp as well as the Bilious Fever in time becomes contagious. ———

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I will not however venture to say but that they may have been orig.ⁿ of y.ᵉ same Disease, & are only diversified by the Difference of Climate, & ~~the variegated Circumstances of the Weather~~ for even this mash Fever in time become contagious, & in many Cases partake on many Symptoms of y.ᵉ Bilious Fever of the West Indies.

vs Rush